

WHAT IS CLAIMED IS:

1. A boiling water reactor nuclear power plant comprising:
- a reactor building;
  - a pressure containment vessel positioned in said reactor building;
  - a drywell comprising a space inside said pressure containment vessel;
  - a pressure suppression pool provided inside said pressure containment vessel;
  - a nuclear reactor pressure vessel contained by said pressure containment vessel;
  - a reactor core having fuel assemblies supported by a reactor core support plate and an upper grid plate provided in an inner base portion of said nuclear reactor pressure vessel;
  - a reactor core shroud surrounding said reactor core and said upper grid plate;
  - control rod guide tubes positioned in said reactor core shroud and over said upper grid plate;
  - control rods inserted in said control rod guide tubes; and
  - control rod drive mechanisms which drive the insertion and withdrawal of said control rods from above said reactor core, the control rod drive mechanisms being provided above said control rod guide tubes and inside said reactor core shroud.

2. The boiling water reactor nuclear power plant according to claim 1, wherein said pressure suppression pool is positioned higher than said reactor

core, said pressure suppression pool being connected to said nuclear reactor pressure vessel by means of gravity-based piping through which the cooling water drops by gravity.

3. The boiling water reactor nuclear power plant according to claim 1, wherein a piping and nozzles connected to said nuclear reactor pressure vessel are positioned above said reactor core.

4. The boiling water reactor nuclear power plant according to claim 1, wherein a valve which can be optionally opened to an exterior of said reactor core shroud is provided at a position above said fuel assembly.

5. The boiling water reactor nuclear power plant according to claim 1, wherein walls of said pressure containment vessel are made from multiple steel plates having ribs, the multiple steel plates being mutually opposing in a separated fashion through the ribs, and the spaces formed between the multiple steel plates are used as flow passages of water or air.

6. The boiling water reactor nuclear power plant according to claim 1, wherein said pressure suppression pool and a lower portion of the dry well are connected by means of a plurality of emergency opening passages at different elevational positions.

7. The boiling water reactor nuclear power plant according to claim 5,

wherein a normal use cooling system is connected to the space regions formed between said multiple steel plates.

8. The boiling water reactor nuclear power plant according to claim 1, wherein a normally-closed water discharge pipe is led from said pressure suppression pool into said dry well at the base region of said nuclear reactor pressure vessel, and said water discharge pipe is normally closed by a sealing device while the sealing device is released in case of emergency so as to open said water discharge pipe.

9. The boiling water reactor nuclear power plant according to claim 1, wherein a heat pipe capable of exchanging heat is provided at a portion between said pressure suppression pool and the lower region of said dry well.

10. The boiling water reactor nuclear power plant according to claim 1, wherein said pressure suppression pool is positioned on the outer side of said dry well, a guard pipe is provided so as to extend from said dry well section to said pressure suppression pool, and valves and piping led from said nuclear reactor pressure vessel are accommodated in said guard pipe.

11. The boiling water reactor nuclear power plant according to claim 1, wherein a turbine system is installed on an upper portion of the reactor building.

12. The boiling water reactor nuclear power plant according to claim 1,

wherein an extraction space capable of accommodating said nuclear reactor pressure vessel to lift is provided above the nuclear reactor pressure vessel in the reactor building.

13. The boiling water reactor nuclear power plant according to claim 1, wherein said reactor building is positioned on a foundation base having an anti-seismic structure.

14. A method of constructing a boiling water reactor nuclear power plant comprising the steps of:

previously making the boiling water reactor nuclear power plant as a building module, which comprises a reactor building, a pressure containment vessel positioned in said reactor building, a drywell comprising a space inside said pressure containment vessel, a pressure suppression pool provided inside said pressure containment vessel, a nuclear reactor pressure vessel contained by said pressure containment vessel, a reactor core having fuel assemblies supported by a reactor core support plate and an upper grid plate provided in an inner base portion of said nuclear reactor pressure vessel, a reactor core shroud surrounding said reactor core and said upper grid plate, control rod guide tubes positioned in said reactor core shroud and over said upper grid plate, control rods inserted in said control rod guide tubes, and control rod drive mechanisms which drive the insertion and withdrawal of said control rods from above said reactor core, the control rod drive mechanisms being provided above said control guide tubes and inside said reactor core shroud;

transporting said building module to a construction site for the  
nuclear power plant; and

installing said building module on the construction site there by to  
construct the boiling water reactor nuclear power plant.

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